

CLAIMS

What is claimed is:

- 5 1. A coating composition comprising a chrome-free environmentally friendly formulation.
2. The coating according to claim 1, wherein said composition includes water, resins, hazardous air pollutants-free co-solvents, organofunctional silanes, metal chelating agents, and chrome-free corrosion inhibitors.
- 10 3. The coating according to claim 2, wherein said composition further includes at least one pH adjusting agent.
4. The coating according to claim 2, wherein said water is present in a range of 60-70% by weight, and preferably present in a range of 61-63% by weight.
5. The coating according to claim 2, wherein said resin is present in a range of 15-15 25% by weight and preferably in a range of 20-23% by weight is preferred.
6. The coating according to claim 2, wherein said resin is of a size selected from the group consisting essentially of micro- and nano- particle size.
7. The coating according to claim 5, wherein said resin is selected from the group consisting essentially of an acrylic emulsion, a polyurethane emulsion, a co-polymer 20 emulsion, and other similar compounds.
8. The coating according to claim 2, wherein said hazardous air pollutants (HAPs)-free co-solvents are present in a range of 10-20% by weight and preferably in a range of 15-17% by weight.
9. The coating according to claim 11, wherein said hazardous air pollutants (HAPs)- 25 free co-solvents are selected from the group consisting essentially of DPnB and PnB co-solvents.
10. The coating according to claim 2, wherein said organofunctional silanes are present in a range of 0.4-5% by weight and preferably in a range of 1.5-2.5 % by weight is preferred.
- 30 11. The coating according to claim 10, wherein said organofunctional silanes include sterically hindered substituents located at silicon atoms.
12. The coating according to claim 11, wherein said substituents are selected from the group consisting essentially of vinyl, epoxy, sulfur, amino, functionalized

mercaptosilanes, and aminosilanes. -

13. The coating according to claim 2, wherein said corrosion inhibitors are present in a range of 0.1-1.0% by weight and preferably in a range of 0.3-0.5% by weight is preferred.

5 14. The coating according to claim 11, wherein corrosion inhibitor is selected from the group consisting essentially of silicates, vanadates, metaborates, manganates, phosphates, mercapto-compounds, xanthic acid salts, dithiocarbamic acid salts, organic carboxylates, and other similar compounds.

10 15. The coating according to claim 3, wherein said composition includes trace amounts of pH adjusting agents.

16. The coating according to claim 15, wherein pH adjusting agent is selected from the group consisting essentially of ammonia, organic amines, and other similar agents.

17. A metal alloy coated with the coating composition as set forth in claim 1.

15 18. An anti-corrosion coating comprising the composition set forth in claim 1.

19. An anti-fingerprint coating comprising the composition set forth in claim 1.

20. A highly adhesive coating to the metal alloys and galvanized steel as set forth in claim 1.

20 21. A highly adhesive coating to the subsequent liquid and powder paints as set forth in claim 1

22. The galvanized and galvalume coats with the coating composition as set forth in claim 1.